

**EPA Superfund  
Record of Decision Amendment:**

**LOWER ECORSE CREEK DUMP**

**EPA ID: MID985574227**

**OU 01**

**WYANDOTTE, MI**

**07/13/2001**

**United States Environmental Protection Agency**

**Record of Decision Amendment**

**#1**

**Lower Ecorse Creek Superfund Site  
Wyandotte, Michigan**

**Record of Decision Amendment  
for the  
Lower Ecorse Creek Site  
Wyandotte, Michigan**

Site Name and Location

Lower Ecorse Creek Site  
North Drive  
Wyandotte, Michigan 48192

Statement of Basis

This decision document amends the July 17, 1996, Record of Decision (ROD) for the Lower Ecorse Creek site, in Wyandotte, Michigan. This decision document presents the selected remedial action for the Lower Ecorse Creek Site, and was developed in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). Specifically, this decision document has been prepared in compliance with CERCLA Section 117 and NCP Section 300.435(c)(2)(11). This decision document explains the factual and legal basis for selecting the remedy for this site. The information supporting this remedial action decision is contained in the administrative record for this site.

Assessment of the site

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Record of Decision (ROD) Amendment, may present an imminent and substantial endangerment to public health, welfare, or the environment.

Description of the Selected Remedy

The selected remedy is the final remedy for the site. The remedy addresses the threats posed by principal threat wastes and contaminated groundwater at the site. Principal threat wastes are defined as those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present significant risk to human health or the environment should exposure occur.

The major components of the selected remedy include the following:

- Excavation and disposal of shallow and deep contaminated soil on residential properties;
- Resampling of locations identified in the Remedial Investigation which showed contaminant levels above cleanup standards to determine the extent of contamination;
- Restoration of residential areas affected by excavation
- Restricting the use of the land and the groundwater at the City of Wyandotte park area;

#### Declaration of Statutory Determinations

The selected remedy is protective of human health and the environment, complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action, except Part 111 of the Natural Resources and Environmental Protection Act, 1994 PA 451 which is being waived by the U.S. EPA pursuant to Section 121(d)(4) of CERCLA, 42 U.S.C. Section 9621(d)(4). The selected remedy will achieve a standard of performance equivalent to the requirements of Part 111 of the Natural Resources and Environmental Protection Act, 1994 PA 451. The selected remedy is cost effective. Because treatment of the principle threats of the site was not found to be practicable, this remedy does not satisfy the statutory preference for treatment as a principle element.

Because this remedy will result in hazardous substances remaining on-site above health-based levels, a review will be conducted every five years after commencement of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

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William E. Muno, Director  
Superfund Division

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Date

State of Michigan: Letter of Concurrence

## Decision Summary for Record of Decision Amendment

### **I. Introduction and Site Background Information**

#### **1 . Site Name, Location, and Description**

The H. Brown Co., Inc. site is located generally near 2200 Turner Avenue, N.W. in the City of Walker, Kent County, Michigan. Figure 1 is a site location plan and Figure 2 is a diagram of the site.

The H. Brown site is located in a light industrial area in Walker, in south central Michigan. A Grand Rapids city park is located east of US-131. Further to the east of the park, approximately 1,000 feet from the site, lies the Grand River. The site is roughly bounded by US-131 on the east and Turner Avenue on the west, but includes one area to the west of Turner Avenue. The site also includes Zenith Auto Parts to the north and Abbott Auto Parts (formerly Turner Auto Parts) to the south. The site includes the following components (see Figure 2):

- Areas with surface soil contaminated with 500 parts per million (ppm) or more of lead;
- An unnamed drainage ditch east of Zenith Auto Parts;
- A drainage ditch named Cogswell Drain located near the southern boundary of Keizer Equipment Company;
- The storm sewer on Turner Avenue, between Zenith Auto Parts and Cogswell Drain;
- Approximately the northern half of a marshy area within (1) the current, eastern boundary of H. Brown, (2) southbound US-131, (3) Cogswell Drain, and (4) the unnamed drain east of Zenith Auto Parts. This area is referred to as the "wetland" throughout this document.

The general area of the site was once used as a landfill that received unknown types and quantities of waste. The boundaries of the landfill are not well defined, but they may extend beyond the boundaries of industries surrounding H. Brown.

On September 30, 1992, a Record of Decision (ROD) addressing the entire site was signed by the Regional Administrator. It addressed contaminated surface and subsurface soils, surface water and sediments, and groundwater. The remedy selected in the ROD was a final remedial action and included the following major components:

- C Demolishing buildings to allow cleanup of contaminated soil beneath the structures, and disposal of the debris on-site or in an appropriate off-site landfill.
- C Consolidating contaminated surface soil in the area where subsurface soil cleanup will be required.

- C Solidifying/stabilizing, in place, contaminated surface and subsurface soil and sediments in a cement-like form.
- C Placing a multi-layer cap over the solidified/stabilized soil sufficient to meet the requirements of Michigan's Hazardous Waste Management Act 64 (now known as Part 111 of the Natural Resources and Environmental Protection Act, 1994 PA 451 fact 451 Part 111)
- C Surrounding the solidified/stabilized soil with a containment wall.
- C Collecting, treating and discharging to the surface water all groundwater and surface water associated with construction.
- C Installing additional wells to further define the condition of the intermediate and deep aquifers. This information will be used to determine what, if any, remediation of those aquifers needs to take place. These wells, along with other wells at the site, will be used to monitor the effectiveness of the remedy.
- C Restricting the use of the land and the groundwater.
- C Maintaining a fence around the site to prevent access.

On September 29, 1995 a ROD Amendment was issued based upon data obtained from the Pre-Design Field Investigation (PDFI), which showed that both the solidification of the soils and the construction of a slurry wall are not feasible and are not necessary to achieve protection. The September 1995 ROD Amendment required the implementation of the following components:

- C Consolidating contaminated surface soil in the area where subsurface soil cleanup will be required;
- C Placing a Michigan Act 451 Part 115 Solid Waste multi layer cap over all soils exceeding 500 parts per million of lead;
- C Long-term monitoring of the shallow and intermediate aquifers to monitor the effectiveness of the remedy;
- C Restricting the use of the land and the groundwater;
- C Maintaining a fence around the site to prevent access;

The lead agency for the Remedial Design/Remedial Action (RD/RA) at this site is the United States Environmental Protection Agency (U.S. EPA). The State of Michigan Department of Environmental Quality (MDEQ) is the support agency. Pursuant to a July 1, 1996 Unilateral Administrative Order (UAO), Docket Number V-W-'96-C-356, the Potentially Responsible Parties (PRPs) are

implementing the Remedial Design/Remedial Action. This ROD Amendment will become part of the Administrative Record in accordance with NCP Section 300.825(a)(2). The Administrative Record is maintained at the U.S. EPA Region V Docket Room in Chicago, and at Walker City Hall. This ROD Amendment has been prepared in accordance with CERCLA Section 117 and with NCP Section 300.435(c)(2)(ii).

## **2. Post-ROD Enforcement Activities**

On November 6, 1992, Special Notice Letters were issued to 115 major PRPs offering them the opportunity to undertake the Remedial Design/Remedial Action (RD/RA). On March 18, 1993, the 120 day negotiation moratorium concluded without a settlement. Subsequently, on March 30, 1993, U.S. EPA initiated a fund-lead RD under an Interagency Agreement with the U.S. ACE. On September 29, 1995 a ROD Amendment was issued by U.S. EPA. On July 1, 1996 a UAO was issued to 31 PRPs, ordering them to design and implement the new remedy selected in the ROD Amendment.

## **3 . Highlights of Community Participation**

A public comment period on the proposed plan for the ROD Amendment for this Site was held from August 12 to September 11, 1997. In addition, a public meeting was held on August 19, 1997 at the Walker Community Building, Walker, Michigan. At this meeting, representatives from U.S. EPA answered questions about problems at the Site and the remedial alternatives under consideration. Approximately 5 people attended that meeting. Comments and questions from the public were also accepted at the meeting. During the comment period, EPA received approximately 8 comments concerning the proposed plan. Most concerns raised were in regard to how the affected properties would be restored after the Remedial Action. Most commentors supported the proposed cleanup plan. Copies of all documents pertaining to this ROD Amendment can be found at the Kent County Public Library and Walker City Hall.

## **II. Rationale for Record of Decision Amendment #2**

On April 14, 1997, U.S. EPA received notice that a Buy and Sell agreement had been executed between DBV, Inc. and H. Brown Company Inc. for the properties comprising the H. Brown Superfund site. The intent of the buyer, DBV, Inc. is to redevelop the property and bring it back into a beneficial use. The redevelopment plan has been presented to U.S. EPA in an April 18, 1997 proposal which showed the plan to include 2 to 3 large buildings with concrete foundations, parking facilities and landscaped areas. When constructed, and as long as they are properly maintained, the facilities would serve as an impermeable barrier preventing direct contact with the contaminated soils and would minimize the potential for precipitation to leach through the contaminated material. Erosion and runoff into the adjacent wetlands would also be prevented.

Michigan's Act 451 Part 111 is considered applicable for this site because hazardous waste was disposed of at the site after the effective date of the RCRA regulations; this alternative would not comply with that ARAR, but it would achieve a standard of performance equivalent to that required.



Therefore, as discussed below, a waiver of that ARAR is appropriate. This alternative would achieve a standard of performance equivalent to those required under Act 451 Part 111, as they pertain to preventing direct contact with contaminated materials. The intent of a Part 111 landfill cover is to minimize both the potential for direct contact with contaminated materials, and the potential for leaching of the contaminants into underlying aquifers. With contaminated materials currently sitting in the shallow aquifer at the H. Brown Site, any additional degree of impermeability afforded by a Part 111 cap is negated. Additionally, the Pre-Design Field Investigation found that site related lead contamination is not currently migrating off-site in the groundwater, but instead is remaining bound to soil particles on-site, showing that direct contact with the contaminated soil is the exposure pathway of primary concern and the one which should be addressed in the design of the final cover. The concrete foundations and asphalted areas will serve as an impermeable barrier as long as proper maintenance is continued. Therefore, under the new future use and redevelopment scenario, with an active facility to be operating on-site, and with long-term maintenance of the cover system assured, the requirement to construct and maintain a vegetated clay cap over the contaminated soils is being waived. If the land-use changes, or the redevelopment fails, the cleanup plan contains a contingency that a vegetated clay cover, consistent with the requirements contained in Michigan's Act 451, Part 115 will be constructed.

### **III. Description of Alternatives**

The following alternatives were considered for amending the ROD for the H. Brown Superfund Site, taking into consideration the new information concerning the future use of the property, As required by the NCP, the "No Action" alternative was considered solely as a baseline to compare the other alternatives.

Alternative 1: No Action

Alternative 2: Warehouse Redevelopment

Alternative 3: Michigan Act 451 Part 111 Cap

Each of the alternatives considered for the ROD Amendment are individually compared against each of the nine criteria described below. Figure 7 represents the approximate area to be covered with the covers evaluated. Tables 1 and 2 present the detailed cost estimates for each of the alternatives.

- (A) Overall protection of human health and the environment. Alternatives shall be assessed to determine whether they can adequately protect human health and the environment, in both the short- and long-term, from unacceptable risks posed by hazardous substances, pollutants, or contaminants present at the site by eliminating, reducing, or controlling exposures to levels established during development of remediation goals consistent with § 300.430(e)(2)(1). Overall protection of human health and the environment draws on the assessments of other evaluation criteria, especially long-term effectiveness and permanence, short-term effectiveness, and compliance with ARARS.

- (B) Compliance with ARARS. The alternatives shall be assessed to determine whether they attain applicable or relevant and appropriate requirements under federal environmental laws and state environmental or facility siting laws or provide grounds for invoking one of the waivers under paragraph (f)(1)(ii)(C) of this section.
- (C) Long-term effectiveness and permanence. Alternatives shall be assessed for the long-term effectiveness and permanence they afford, along with the degree of certainty that the alternative will prove successful. Factors that shall be considered, as appropriate, include the following:
- (1) Magnitude of residual risk remaining from untreated waste or treatment residuals remaining at the conclusion of the remedial activities. The characteristics of the residuals should be considered to the degree that they remain hazardous, taking into account their volume, toxicity, mobility, and propensity to bioaccumulate.
  - (2) Adequacy and reliability of controls such as containment systems and restrictive covenants that are necessary to manage treatment residuals and untreated waste. This factor addresses in particular the uncertainties associated with land disposal for providing long-term protection from residuals; the assessment of the potential need to replace technical components of the alternative, such as a cap, a slurry wall, or a treatment system; and the potential exposure pathways and risks posed should the remedial action need replacement.
- (D) Reduction of toxicity, mobility, or volume through treatment. The degree to which alternatives employ recycling or treatment that reduces toxicity, mobility, or volume shall be assessed, including how treatment is used to address the principal threats posed by the site. Factors that shall be considered, as appropriate, include the following:
- (1) The treatment or recycling processes the alternatives employ and materials they will treat;
  - (2) The amount of hazardous substances, pollutants, or contaminants that will be destroyed, treated, or recycled;
  - (3) The degree of expected reduction in toxicity, mobility, or volume of the waste due to treatment or recycling and the specification of which reduction(s) are occurring;
  - (4) The degree to which the treatment is irreversible;
  - (5) The type and quantity of residuals that will remain following treatment, considering the persistence, toxicity, mobility, and propensity to bioaccumulate of such hazardous substances and their constituents; and
  - (6) The degree to which treatment reduces the inherent hazards posed by principal threats at the site.

- (E) **Short-term effectiveness.** The short-term impacts of alternatives shall be assessed considering the following:
- (1) Short-term risks that might be posed to the community during implementation of an alternative;
  - (2) Potential impacts on workers during remedial action and the effectiveness and reliability of protective measures;
  - (3) Potential environmental impacts of the remedial action and the effectiveness and reliability of mitigative measures during implementation; and
  - (4) Time until protection is achieved.
- (F) **Implementability.** The ease or difficulty of implementing the alternatives shall be assessed by considering the following types of factors as appropriate:
- (1) Technical feasibility, including technical difficulties and unknowns associated with the construction and operation of a technology, the reliability of the technology, ease of undertaking additional remedial actions, and the ability to monitor the effectiveness of the remedy.
  - (2) Administrative feasibility, including activities needed to coordinate with other offices and agencies and the ability and time required to obtain any necessary approvals and permits from other agencies (for off-site actions);
  - (3) Availability of services and materials, including the availability of adequate off-site treatment, storage capacity, and disposal capacity and services; the availability of necessary equipment and specialists, and provisions to ensure any necessary additional resources; the availability of services and materials; and availability of prospective technologies.
- (G) **Cost.** The types of costs that shall be assessed include the following:
- (1) Capital costs, including both direct and indirect costs;
  - (2) Annual operation and maintenance costs; and
  - (3) Net present value of capital and O&M costs.
- (H) **State acceptance.** Assessment of state concerns may not be completed until comments on the RI/FS are received but may be discussed, to the extent possible, in the proposed plan issued for public comment. The state concerns that shall be assessed include the following:

- (1) The state's position and key concerns related to the preferred alternative and other alternatives; and
  - (2) State comments on ARARs or the proposed use of waivers.
- (I) Community acceptance. This assessment includes determining which components of the alternatives interested persons in the community support, have reservations about, or oppose.

Based upon the results of the site investigations the following assumptions were used in developing the alternatives:

- 15 acres would require clearing of trees and shrubs;
- 3,600 linear feet of fencing would be erected;
- 15 acres of soil would require capping;
- 180,000 cubic yards of soil, sediments, and battery chips require remediation.

### **Alternative 1: No Action**

#### **Description:**

Under this alternative, no remedial action would be taken at the H. Brown site.

#### **Evaluation:**

### **Overall Protection of Human Health and the Environment**

If no remedial action is implemented at the site, existing risks to human health and the environment from contaminants at the site would remain. Therefore, this alternative does not provide adequate protection of human health or the environment.

### **Compliance with ARARs**

This alternative would not comply with chemical-specific ARARs because the current concentrations of many contaminants in the soils and the air exceed corresponding ARAR based allowable concentrations and would continue to do so. For instance, health based standards for preventing direct contact with soils would not be met. The current concentrations of lead in soil are higher than the cleanup level for lead, and would remain high indefinitely.

### **Long-Term Effectiveness and Permanence**

This alternative would not be effective for the long-term because the concentrations of metals, especially lead, would remain indefinitely.

### **Reduction of Toxicity, Mobility, or Volume through Treatment**

This alternative would not reduce the toxicity, mobility, or volume of contaminants at the site through treatment.

### **Short-Term Effectiveness**

This alternative would not be effective for the short term because current concentrations of contaminants at the site would remain at current, high levels indefinitely.

### **Implementability**

This alternative would be easily implemented.

### **Cost**

No capital or O&M costs are associated with this alternative because no remedial action would be implemented.

## **Alternative 2: Warehouse Redevelopment**

### **Description:**

This alternative includes consolidating all of the soil requiring cleanup onto the H. Brown property. Excavated areas on the property known as Abbott Auto will be left in a condition that allows for unrestricted use of the property; this includes providing a final grade across the property consistent with the current grade, and a grade that will allow for proper drainage of the property. The H. Brown property would then be redeveloped by private parties, with warehousing facilities being constructed above the contaminated soils. A continuous impermeable cap will be constructed over all contaminated soils on the site so as to prevent direct contact with the contaminated materials and to minimize infiltration of precipitation through the cover into the waste materials. The cap will consist of concrete slab foundations for warehouse structures and asphalted parking areas. Contaminated soils to be covered by concrete foundations and floors will be covered by, at a minimum, six (6) inches of concrete and eighteen (18) inches of compacted, clean fill. Contaminated soils to be covered by the asphalt parking ways will, at a minimum, receive a cover consisting of the following components, (listed from top to bottom): three (3) inches of asphalt, eight (8) inches of road gravel, and thirteen (13) inches of clean subbase material. Any contaminated soils not covered by the foundations or asphalt, will be covered by at least three (3) feet of clean fill. The remedy also includes deed restrictions, monitoring for landfill gas, if necessary, and cleaning the Turner Avenue storm sewer. This alternative includes a

contingency plan for implementation of Alternative #3 if the redevelopment plan is not implemented as set forth above, or as approved by U.S. EPA.

## **Evaluation:**

### **Overall Protection of Human Health and the Environment**

This alternative is considered protective of human health and the environment. This alternative would not comply with all ARARs associated with the site, however, it is considered protective of human health and the environment. Specifically, Michigan's Act 451 Part 111 is considered applicable for this site because hazardous waste was disposed of at the site after the effective date of the RCRA regulations; this alternative would not comply with that ARAR, but it would achieve a standard of performance equivalent to that required. Therefore, as discussed below, a waiver of that ARAR is appropriate. Because untreated toxic waste would remain in place, this remedy may not be permanent. Asphalt and concrete covers are susceptible to damage from weathering and from the use of the property. The risk of this damage will be minimized through proper maintenance of the cover system. If the cap failed, release of hazardous constituents would possibly result in unacceptable future risks. This alternative would not be difficult to implement and has a high degree of short-term effectiveness.

### **Compliance with ARARs**

This alternative would not comply with all ARARs for media at the site. Michigan's Act 451 Part 111 is considered applicable for this site because hazardous waste was disposed of at the site after the effective date of the RCRA regulations; this alternative would not comply with that ARAR, but it would achieve a standard of performance equivalent to that required. A waiver of the ARAR is appropriate pursuant to Section 121(d)(4)(D) of CERCLA. Part 111 requires that a hazardous waste landfill cap include both a layer of compacted clay exceeding the areas frost depth, but not less than 90 centimeters, and not less than 60 centimeters of additional material to prevent damage to the cap from burrowing animals, temperature, erosion, and rooted vegetation. The cap in this alternative would not meet the requirement for at least 90 centimeters of compacted clay, a frost protection layer or a vegetated layer. It does include an impervious cover system which would meet the requirements of Part 111 pertaining to preventing exposure to contaminants via direct contact. It will provide for the same degree of protection of human health and the environment.

The intent of a Part 111 landfill final cover design is to minimize both the potential for direct contact with contaminated materials, and the potential for leaching of the contaminants into underlying aquifers. With contaminated materials currently sitting in the shallow aquifer at the H. Brown Site any additional degree of impermeability afforded by a Part 111 cap is negated. Additionally, the Pre-Design Field Investigation found that site related lead contamination is not currently migrating off-site in the groundwater, but instead is remaining bound to soil particles onsite, showing that direct contact with the contaminated soil is the exposure pathway of concern. The cover system will serve as a barrier to direct contact as long as proper maintenance is continued and will also minimize the potential for precipitation from coming in contact with contaminants in the vadose zone. Under the new future use and redevelopment scenario, with an active facility to be operating on-site, and with long-term

maintenance of the cover system assured, the requirement to construct and maintain a vegetated clay cap over the contaminated soils is being waived. If the land-use changes the cleanup plan contains a contingency that a vegetated clay cover, consistent with the requirements contained in Michigan's Act 451, Part 115 will be constructed.

Because of the redevelopment of the property, and the anticipated permanent on-site presence of maintenance personnel, this alternative is equally reliable, and will take less time to implement than the cap required under the ARAR. Consolidating and capping soils would comply with chemical specific ARARs based upon direct exposure. This alternative would meet ARARs for the Clean Air Act based upon National Ambient Air Quality (NAAQ) standards. The installation of the cap over the site will minimize recharge of the shallow aquifer via precipitation percolating through the contaminated vadose zone, thereby minimizing the potential for additional contaminants to enter the groundwater.

### **Long-Term Effectiveness and Permanence**

This alternative would remain effective for as long as the integrity of the cap is maintained. Because toxic constituents would remain untreated in a land disposal unit, the permanence of this alternative is uncertain. For instance, if the cover failed, risks may be associated with potential direct exposure to exposed waste.

### **Reduction of Toxicity, Mobility, or Volume through Treatment**

Under this alternative, the toxicity and volume and mobility of contaminants in soil would remain unchanged. As the Pre-Design Field Investigation showed, contaminants are remaining bound to soil particles and remain immobile in the groundwater. Although the alternative involves no treatment, construction of the cover system would result in a reduction in erosion and percolation of precipitation through the contaminated waste. The residuals are persistent, toxic and can become mobile via wind and hydraulic erosion; any failure of the cap may decrease the effectiveness of the remedial action in limiting this type of contaminant mobility.

### **Short-Term Effectiveness**

This alternative would be quickly and easily implemented. Implementation would require between 1 to 2 years. During implementation, some short-term risks would be posed to the remediation crew through direct contact, ingestion, or inhalation of contaminated soil. Adults

and children off site could also be exposed to contaminated dust resulting from excavation of soil requiring remediation.

Risks from exposure to contaminated media during the remediation efforts would be minimized by providing appropriate levels of protection to the remediation crew. Dust control measures, such as spraying water or foam, would be implemented. Surface run-off onto and from the site would also be controlled to minimize generation and off-site migration of contaminated surface water from the site.

## **Implementability**

Construction of the cap would be easy to implement. Collecting surface water and sediments from the sewer system is expected to be easy due to the number of vendors offering the service.

## **Cost**

This alternative has a low capital and a low annual O&M cost (\$5,011,502 and \$13,185, respectively). The total present worth of the remedy, assuming 30 years of O&M and a 10 percent discount factor, is \$5,214,199.

## **Alternative 3: Michigan Act 451 Part 115 Clay Cap**

### **Description**

Under this alternative all soil above cleanup standards would be consolidated onto the H. Brown Co., Inc. property and capped with a clay cap meeting Michigan's Act 451 Part 115 specifications. The cap would include, from top to bottom, 6 inches of top soil with vegetation, 1.5 feet of clean fill, 2 feet of clay, and fill material. A fence would be constructed around the entire site to prevent access and groundwater would be monitored over the life of the remedy to ensure protectiveness. It also includes monitoring for landfill gas, if necessary, and cleaning the Turner Avenue sewer.

### **Evaluation:**

### **Overall Protection of Human Health and the Environment**

This alternative would not comply with all ARARs associated with the site, however, it is considered protective of human health and the environment. Specifically, Michigan's Act 451 Part 111 is considered applicable for this site because hazardous waste was disposed of at the site after the effective date of the RCRA regulations; this alternative would not comply with that ARAR, but it would achieve a standard of protection equivalent to that required at this site because the waste currently sits within the shallow groundwater, and site contaminants are shown to be adhering to soil particles and, therefore, are not mobile. As a result, a Part 111 cap would not provide any additional protection against infiltration causing site contaminant mobility or leaching.. Therefore, as discussed below, a waiver of that ARAR is appropriate. This alternative would comply with Act 451 Part 115 requirements. Because untreated toxic waste would remain in place, this remedy may not be permanent. If the cap failed, release of hazardous constituents would possibly result in unacceptable future risks. Clay caps are susceptible to cracking caused by exposure to freeze-thaw cycles and from other weather related conditions. This alternative would not be difficult to implement and has a high degree of short-term effectiveness.



## **Compliance with ARARs**

This alternative would not comply with all ARARs for media at the site. Michigan's Act 451 Part 111 is considered applicable for this site because hazardous waste was disposed of at the site after the effective date of the RCRA regulations; this alternative would not comply with that ARAR, but it would achieve a standard of protection equivalent to that required at this site because the waste currently sits within the shallow groundwater, and site contaminants are shown to be adhering to soil particles and therefore are not mobile. As a result, a Part 111 cap would not provide any additional protection against infiltration causing site contaminant mobility or leaching. A waiver of the ARAR is appropriate pursuant to Section 121 (d) (4) (D) of CERCLA. Part 111 requires that a hazardous waste landfill cap include both a layer of compacted clay exceeding the areas frost depth, but not less than 90 centimeters, and not less than 60 centimeters of additional material to prevent damage to the cap from burrowing animals, temperature, erosion, and rooted vegetation. The cap in this alternative would not meet the requirement for at least 90 centimeters of compacted clay. It does include two feet of compacted clay, plus a layer of additional material for frost protection.

The cap proposed under this alternative would prevent direct contact with the contaminated waste and would minimize contact of water with the waste to the same degree as an Act 451 Part 111 cap. Although there is hazardous waste on-site, a portion of the waste sits in the shallow groundwater minimizing any benefit gained by placing a more impermeable cap such as an Act 451 Part 111 cap over the waste. The Part 111 cap is designed to minimize the potential for direct contact with hazardous waste and to minimize the potential for contaminants to leach from the waste via contact with precipitation. Applying an Act 451 Part 111 cap will not prevent contact of the groundwater with the waste. An Act 451 Part 115 cap will prevent direct contact and will minimize the amount of precipitation coming in direct contact with the waste in the vadose zone. It will provide for the same degree of protection of human health and the environment given the site specific hydrogeologic and geochemical circumstances at this site. The cover system is equally reliable, and will take less time to implement than the cap required under the ARAR. The cap under this alternative would comply with Michigan's Solid Waste Act 451 Part 115 requirements. Consolidating and capping soils would comply with chemical specific ARARs based upon direct exposure. This alternative would meet ARARs for the Clean Air Act based upon National Ambient Air Quality (NAAQ) standards. The installation of the cap over the site will minimize recharge of the shallow aquifer via precipitation percolating through the contaminated vadose zone, thereby minimizing the potential for contaminants to enter the groundwater.

## **Long-Term Effectiveness and Permanence**

This alternative would remain effective for as long as the integrity of the cap is maintained. Because toxic constituents would remain untreated in a land disposal unit, the permanence of this alternative is uncertain. For instance, if the cap failed, risks may be associated with potential direct exposure to exposed waste.

## **Reduction of Toxicity, Mobility, or Volume through Treatment**

Under this alternative, the toxicity and volume and mobility of contaminants in soil would remain unchanged. As the Pre-Design Field Investigation showed, contaminants are remaining bound to soil particles and remain immobile in the groundwater. Although the alternative involves no treatment, construction of the cap would result in a reduction in erosion and percolation of precipitation through the contaminated waste. The residuals are persistent, toxic and can become mobile via wind and hydraulic erosion; any failure of the cap may decrease the effectiveness of the remedial action in limiting this type of contaminant mobility.

## **Short-Term Effectiveness**

This alternative would be quickly and easily implemented. Implementation would require between 1 to 2 years. During implementation, some short-term risks would be posed to the remediation crew through direct contact, ingestion, or inhalation of contaminated soil. Adults and children off site could also be exposed to contaminated dust resulting from excavation of soil requiring remediation.

Risks from exposure to contaminated media during the remediation efforts would be minimized by providing appropriate levels of protection to the remediation crew. Dust control measures, such as spraying water or foam, would be implemented. Surface run-off onto and from the site would also be controlled to minimize generation and off-site migration of contaminated surface water from the site.

## **Implementability**

Construction of the cap would be easy to implement. Collecting surface water and sediments from the sewer system is expected to be easy due to the number of vendors offering the service.

## **Cost**

This alternative has a low capital and a low annual O&M cost (\$1,151,153 and \$81,000, respectively). The total present worth of the remedy, assuming 30 years of O&M and a 10 percent discount factor, is \$1,914,741.

## **Comparative Analysis of Alternatives**

A comparative discussion of all alternatives is presented below. The alternatives are compared based upon the nine evaluation criteria discussed above.

## **Overall Protection of Human Health and the Environment**

Under each action alternative, contaminated soil would be covered by a cap. Both Alternatives 2 and 3 are considered protective of human health and the environment. Alternative 1 is not considered protective because it would not reduce the currently unacceptable threats to human health and the environment and would fail to attain all of the ARARs for the site. Alternatives 2 and 3 would not

achieve all of the ARARs for the site, specifically Act 451 Part 111, however, as discussed above, a waiver is appropriate for the alternatives because they will achieve the same level of performance compared to the ARAR. Alternatives 2 and 3 would perform equally well in providing overall protection of human health and the environment.

### **Compliance with ARARs**

None of the alternatives would result in compliance with all ARARs. However an ARAR waiver for Alternatives 2 and 3 is appropriate. Michigan's Act 451 Part 111, and RCRA landfill closure requirements 40CFR Part 264, are considered applicable for this site because hazardous waste was disposed of at the site after the effective date of the RCRA regulations; Alternative 2 and 3 would not comply with that ARAR, but would achieve a standard of performance equivalent to that required. As discussed above a waiver of the ARAR is appropriate pursuant to Section 121(d)(4)(D) of CERCLA.

### **Long-Term Effectiveness and Permanence**

Each of the action alternatives would remain effective for as long as the integrity of the cap is maintained. Because toxic constituents would remain untreated in a land disposal unit, the permanence of the alternatives is uncertain. For instance, if the caps failed, risks may be associated with potential direct exposure to waste. While the cap in Alternative 2 would have a slightly greater risk of failure due to its use of cement and asphalt which are more susceptible to damage from exposure to freeze-thaw cycles than the clay used in Alternative 3, if it is properly maintained it should perform as well as the cap in Alternative 3. The clay cap in Alternative 3 is also susceptible to damage from the freeze-thaw cycles. The use of an additional fill layer as frost protection will minimize any potential for that damage to the clay. The caps would provide

for a greater dewatering effect on the shallow aquifer, minimizing any groundwater flow through the waste.

Considering all of these factors, Alternatives 2 and 3 would provide equivalent overall long-term effectiveness and permanence.

### **Reduction of Toxicity, Mobility, or Volume of Contaminants Through Treatment**

Alternatives 1, 2 and 3 would provide for no reduction of toxicity, mobility, or volume through treatment. They leave all of the contaminated waste in place, untreated.

### **Short-Term Effectiveness**

Alternatives 2 and 3 would be equally protective in the short-term since all effects can be mitigated. Installation of both caps would require extensive labor, increasing risk of exposure to workers. Because both alternatives require the importation of materials to construct the caps, there is an attendant increased risk due to truck traffic.

## **Implementability**

Alternatives 2 and 3 would be equally implementable, although many of the construction materials for the foundations and parking areas are more readily available than clay borrow sources.

## **Cost**

Alternative 2 would be the most expensive with its cost of \$5 million. Alternative 3 has a cost of \$1.9 million. The higher cost of Alternative 2 is attributable to the costs of building the concrete foundations and asphalt parking areas as compared to the cost of building a clay cap. If redevelopment by a private party does not occur, Alternative 2 contains the contingency that Alternative 3 will be constructed. Both alternatives have similar Operation and Maintenance costs associated with them.

## **State Acceptance**

The State of Michigan has assisted in the development and review of the Administrative Record. The State concurs with the selected remedy.

## **Community Acceptance**

The specific public comments received, and U.S. EPA's responses are outlined in the attached Responsiveness Summary.

## **IV. Selected Remedy**

Based upon considerations of the requirements of CERCLA, the NCP and balancing of the nine criteria, the U.S. EPA has determined that Alternative 2, Warehouse Redevelopment, is the most appropriate for the H. Brown site.

The components of the selected remedy are as follows:

1. Access Restrictions
  - a. Temporary and/or permanent signs will be erected and maintained around the site as specified by the U.S. EPA. The purpose of the signs is to notify on-site personnel and visitors of the presence of contaminated soils, and the prohibition of any unauthorized activities which might damage the cap and otherwise impair the remedy.
  - b. Pursuant to Michigan Act 451 Part 201, restrictive covenants including, but not limited to, notice to future property owners of contamination at the site, deed restrictions to regulate the development of the H. Brown site, and groundwater use restrictions in the areas that have contaminated groundwater will be sought. Groundwater use restrictions may be rescinded after remediation standards are met and proven to be maintained.

The purpose of these restrictions is to prevent exposure to site contaminants, prevent erosion of the cap, and provide security for the remedial action equipment.

## 2. Site Monitoring

Groundwater and surface water monitoring. Groundwater aquifers and surface waters and sediments in the site vicinity will be sampled and analyzed periodically to monitor chemical contaminant levels over the life of the remedy to ensure that the contaminants remain contained on-site and the remedy remains protective.

Groundwater monitoring will include shallow and intermediate aquifers beneath the site. Sampling and analysis will include existing groundwater monitoring wells and, if necessary, additional groundwater monitoring wells.

## 3. Soil and Sediment Consolidation

All contaminated soils and sediments which exceed the cleanup standards established in the ROD will be consolidated to the H. Brown Property (2200 Turner Ave. N.W.) Contaminated sediments include those found in the wetlands adjacent to the site, the drainage ditches leading to the Grand River, and the sewer system running along Turner Avenue, that exceed the cleanup standards. The testing shall be conducted to assure that all soil and sediment requiring containment has been consolidated to the area referred to above. Excavated areas on the property known as Abbott Auto will be left in a condition that allows for use of the property consistent with its zoned use at the time of the signing of this ROD Amendment; this includes providing a final grade across the property consistent with the current grade, and a grade that will allow for proper drainage of the property and eliminate any safety hazards created by the excavation activities. Other excavated areas will be backfilled with clean soil from off-site sources, revegetated and otherwise restored to their existing condition, grade and elevation.

## 4. Cap Construction

- a. The cap construction shall consist of a redevelopment of the property for use as a warehousing facility. A continuous impermeable cap will be constructed over all contaminated soils on the site so as to prevent direct contact with the contaminated materials and to minimize infiltration of precipitation through the cover into the waste materials. The cap will consist of concrete slab foundations for warehouse structures and asphalted parking areas. Contaminated soils to be covered by concrete foundations and floors will be covered by, at a minimum, six (6) inches of concrete and eighteen (18) inches of compacted, clean fill. Contaminated soils to be covered by the asphalt parking ways will, at a minimum, receive a cover consisting of the following components, (listed from top to bottom): three (3) inches of asphalt, eight (8) inches of road gravel, and thirteen (13) inches of clean subbase material. Any contaminated soils not covered by the foundations or asphalt, will be covered by at least three (3) feet of clean fill. If necessary, the cap design will also include a methane gas monitoring and/or

venting system for the on-site buildings designed to detect and/or vent unacceptable levels of landfill generated gases that might accumulate under, or in, the buildings.

This cover system is considered protective for this site, because it would provide protection against direct contact with waste at the site and act as a significant barrier to infiltration of precipitation as long as the cover is properly maintained. The waste is in direct hydraulic connection with the shallow groundwater.

- b. The selected remedy is intended to facilitate re-development of the site and will be implemented by private parties. No federal or state Superfund money will be used to implement the redevelopment remedy. If for some reason the planned redevelopment of the property by private parties does not occur, a cap will be constructed on the site in compliance with the substantive requirements of Michigan Act 451 Part 115. At a minimum, the cap will consist of, from top to bottom, a 6 inch vegetative soil layer, a clean fill layer not less than 18 inches in thickness, 24 inches of compacted clay with a hydraulic conductivity of not more than  $1.0 \times 10^{-7}$  centimeters per second after compaction, and maximum and minimum slope. If necessary, the cap design will also include a methane gas monitoring and/or venting system.

A Michigan Act 451 Part 115 cap is considered protective for this site, because it would provide protection against direct contact with waste at the site and act as a significant barrier to infiltration of precipitation. The waste is in direct hydraulic connection with the shallow groundwater.

## 5. Other Provisions

Mitigative measures will be taken during remedy construction activities to minimize the impacts of noise, dust, and erosion run-off to the surrounding community and environs. Fugitive dust emissions will not violate the National Ambient Air Quality Standard for particulate matter smaller than 10 microns (PM-10). Potential runoff, silting, and sedimentation problems from construction will be mitigated to comply with Michigan Acts including Public Acts 203 (1979), 346 (1972) and 347 (1972) for wetland protection, inland lakes and streams, and soil erosion and sedimentation control, respectively. Because excavation in the wetland area adjacent to the site will take place, the selected remedy will comply with the Wetland Management Executive Order 11990, and Michigan's Goemnere-Anderson Wetland Protection Act, Act 203 of 1979.

Because the remedy calls for containing the waste on-site without treatment and the waste is the source of the contaminants, hazardous constituents will remain at the site. Because this remedy will result in hazardous substances remainin on-site, above health-based levels, a review will be conducted within five years of commencement of the remedial action to ensure that the remedy continues to provide adequate protection to human health and the environment.

## **V. Statutory Determinations**

The selected remedy must satisfy the requirements of Section 121 (a) through (f) of CERCLA to:

1. Protect human health and the environment;
2. Comply with ARARs or justify a waiver;
3. Utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and
4. Satisfy a preference for treatment that reduces toxicity, mobility, or volume as a principle element of the remedy.

The implementation of the selected alternative at the H. Brown Co., Inc. site satisfies these requirements of CERCLA Section 121 as follows:

a. Protection of Human Health and the Environment;

Implementation of the selected alternative will reduce and control potential risks to human health posed by exposure to contaminated soil and groundwater. Containment of all soil

exceeding cleanup standards will permanently reduce and control existing and potential risks, through engineering controls.

Restrictive covenants will provide short-term and long-term effectiveness for the prevention of drinking contaminated groundwater. The selected remedy also protects the

environment by reducing the potential risks posed by site chemicals discharging to surface water (Grand River) and the adjoining wetlands.

Capping the site, in addition to reducing any potential further risk posed by exposure to site contaminants, will reduce precipitation infiltration through the cap and maintain that reduction over time. No unacceptable short-term risks will be caused by implementation of the remedy. The community and site workers may be exposed to noise and dust nuisances during construction of the cap. Mitigative measures will be taken during remedy construction activities to minimize impacts of construction upon the surrounding community and environs.

b. Compliance with ARARs

The selected remedy will comply with the federal and/or state, where more stringent, applicable or relevant and appropriate requirements (ARARs) listed below:

1. Chemical-specific ARARs

Chemical-specific ARARs regulate the release to the environment of specific substances having certain chemical characteristics. Chemical-specific ARARs typically determine the extent of clean-up at a site.

### Federal ARARs

Safe Drinking Water Act MCLs and MCLGs - Maximum Contaminant Levels (MCLs) and, to a certain extent, non-zero Maximum Contaminant Level Goals (MCLGs), are the Federal Drinking Water Standards promulgated under the Safe Drinking Water Act (SDWA) which are applicable to municipal drinking water supplies servicing 25 or more people. At the H. Brown site, MCLs and MCLGs are not applicable, but are relevant and appropriate, because the aquifer is a Class II aquifer which could potentially be used in the area of concern. MCLGs are relevant and appropriate when the standard is set at a level greater than zero (for non-carcinogens); otherwise, MCLs are relevant and appropriate. Because this site will have a final cover, the point of compliance will be at the boundary of the final cover.

Clean Air Act National Ambient Air Quality Standards 40 CFR 50 - These regulations provide air emission requirements for actions which may release contaminants into the air. As the selected remedy involves excavation, and construction activities which may release contaminants or particulates into the air, emission requirements promulgated under this act are relevant and appropriate.

### State ARARs

Part 201 of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (formerly known as Act 307 of the Michigan Environmental Response Act) - The Substantive provisions of Parts 6 and 7 of the rules promulgated under Part 201 were identified as an ARAR for the remedial action to be undertaken at this Site. These rules provided, inter alia, that remedial actions be protective of human health, safety, and the environment by a degree of cleanup conforming to one or more of three cleanup types; Type A, B, and C. The ROD and ROD Amendments determined that the selected soil remedy would satisfy Act 307 soil and groundwater cleanup standards. The Act 307 standards have since been replaced by new Part 201 standards.

The amended Part 201 now defines cleanup standards according to categorical criteria that define the nature of the site for which Remedial Action is necessary. Specific cleanup categories are: residential, commercial, recreational, industrial, limited residential, limited commercial, limited recreational, limited industrial, and other land use based or limited categories as established by MDEQ. Part 201 groundwater standards will be considered ARARs for determination of long-term groundwater cleanup standards.

It is anticipated that implementation of the amended remedy will limit development of the Site property until long-term remediation measures are implemented. The Site, is an inactive or abandoned site whose primary activity was industrial in nature, and as such can continue to be classified as industrial. U.S. EPA foresees that appropriate restrictive covenants combined with standard site security measures will be adequate to prevent or limit the exposure potential for the public and will guarantee that the Site is not used for anything except industrial activity. Thus, Part 201 industrial or commercial cleanup criteria would be the relevant ARAR.



Part 201 requires that remedial action cleanup criteria meet a  $10^{-5}$  carcinogenic risk level, or for non-carcinogenic substances, a hazard quotient of 1.0. Because it will contain and manage contaminated soils to acceptable Part 201 soil levels, implementation of the amended remedy would meet or exceed this standard for Site soils and groundwater. Table 3 lists the soil remediation standards for the H. Brown site. Table 4 lists the groundwater remediation standards for the H. Brown site.

Part 55 of the Natural Resources and Environmental Protection Act, 1994 PA 451 (Act 451 Part 55) (formerly known as the Michigan Air Pollution Control Act or Act 348) provides air emission requirements for actions which may release contaminants into the air. The selected remedy involves excavation, construction, and groundwater treatment activities which may release contaminants or particulates into the air. This act is relevant and appropriate.

## 2. Location-specific ARARS

Location-specific ARARs are those requirements that relate to the geographical position of a site. These include:

The Clean Water Act Section 404 - This section of the Act regulates the discharge of dredge and fill materials at sites to waters of the United States. These regulations are applicable to capping of the site and other activities which may take place in the wetlands.

RCRA Location Standards 40 CFR Part 264.18 - These standards are relevant and appropriate for the remedy at the H. Brown site because a portion of the site is located in the 500 year flood plain. These standards specify that a facility located in a flood plain must be designed, constructed, operated, and maintained to prevent washout of hazardous wastes by a flood.

Goemnere-Anderson Wetland Protection Act, Act 203 of 1979 - Regulates any activity which may take place within wetlands in the State of Michigan. Act 203 is applicable at this site; it will require the replacement of adversely impacted wetlands with comparable resources.

Soil Erosion and Sedimentation Control Act, Act 347 of 1972 - This act is applicable to this site due to the selected remedy's use of construction activities that may impact the Grand River. The act regulates earth changes, including cut and fill activities which may contribute to soil erosion and sedimentation of surface water of the State. Act 347 would apply to any such activity where more than one acre of land is affected or regulated action occurs within 500 feet of a lake or stream.

Michigan Act 451 Part 201, Rule 719(3) - This rule requires restrictive covenants be placed on the site including, but not limited to, notice to future property owners of contamination at the site, deed restrictions to regulate the development of the H. Brown site, and groundwater use restrictions in the areas that have contaminated groundwater. Groundwater use restrictions may be rescinded after remediation standards are met and proven to be maintained.

### 3. Action Specific ARARs

Action-specific ARARs are requirements that define acceptable treatment and disposal procedures for hazardous substances.

#### Federal ARARS

RCRA Subtitle C Land Disposal Restrictions (LDRs) - Consolidation will occur within the area of contamination, therefore, the requirements of this act will not be triggered for consolidation. The requirements of this act will be applicable to any off-site treatment of the waste products of the selected remedy that are RCRA hazardous waste. These regulations govern the storage and disposal of hazardous waste. This remedy will comply with LDRs through a Treatability Variance for wastes that cannot be treated to meet the standard.

RCRA Subtitle C Closure Requirements 40 CFR Part 264 - Pursuant to Section 121(d)(4) of CERCLA, 42 U.S.C. Section 9621(d)(4), U.S. EPA is waiving this ARAR. The standards are considered applicable for this site because hazardous waste was disposed of at the site after the effective date of the RCRA regulations; this remedy would not comply with that ARAR, but it would achieve a standard of performance equivalent to that required. A waiver of the ARAR is appropriate pursuant to Section 121(d)(4)(D) of CERCLA.

RCRA Subtitle C general performance standards require that a final cover be designed and constructed to: a) provide long-term minimization or migration of liquids through a closed landfill; b) function with minimum maintenance; C) promote drainage and minimize abrasion of the cover; d) accommodate settling and subsidence so that the cover's integrity is maintained; and, e) have a permeability less than or equal to any bottom liner system or natural subsoils present. They also require the implementation of a post-closure plan, property access restrictions and notifications, and groundwater monitoring.

The cap proposed under this alternative would prevent direct contact with the contaminated waste and would minimize contact of water with the waste to the same degree as a RCRA Subtitle C cap. Although there is hazardous waste on-site a portion of the waste sits in the shallow groundwater. This minimizes any benefit gained by placing a more impermeable cap such as a RCRA Subtitle C cap over the waste. The RCRA Subtitle C cap is designed to minimize the potential for direct contact with hazardous waste and to minimize the potential for contaminants to leach from the waste via contact with precipitation. Applying a RCRA Subtitle C cap will not prevent contact of the groundwater with the waste. A cover system meeting the direct contact requirements of RCRA Subtitle C cap will prevent direct contact and will minimize the amount of precipitation coming in direct contact with the waste in the vadose zone. It will provide for the same degree of protection of human health and the environment. Also, because of the redevelopment of the property and a permanent on site presence of an active facility this is equally reliable because of the ability to perform daily inspections and repairs. It will take less time to implement than the cap required under the ARAR.

## State ARARs

Part 111 of the Natural Resources and Environmental Protection Act, 1994 PA 451 (Act 451 Part 111) (formerly known as the Michigan Hazardous Waste Management Act or Act 64) - Pursuant to Section 121(d)(4) of CERCLA, 42 U.S.C. Section 9621(d)(4), U.S. EPA is waiving this ARAR for the purpose of the cap design and construction only. Michigan's Act 451 Part 111 is considered applicable for this site because hazardous waste was disposed of at the site after the effective date of the RCRA regulations; this alternative would not comply with that ARAR, but it would achieve a standard of performance equivalent to that required at this site because the waste currently sits within the shallow groundwater. Site contaminants are shown to be adhering to soil particles and therefore are not mobile, so as a result, a Part 111 cap would not provide any additional protection against infiltration causing site contaminant mobility or leaching. A waiver of the ARAR is appropriate pursuant to Section 121 (d)(4)(D) of CERCLA. Part 111 requires that a hazardous waste landfill cap include both a layer of compacted clay exceeding the areas frost depth, but not less than 90 centimeters, and not less than 60 centimeters of additional material to prevent damage to the cap from burrowing animals, temperature, erosion, and rooted vegetation. The cap in this alternative would not meet the requirement for at least 90 centimeters of compacted clay, a frost protection layer or a vegetated layer. It does include an impervious cover system which would meet the requirements of Part 111 pertaining to preventing exposure to contaminants via direct contact. It will provide for the same degree of protection of human health and the environment.

The intent of a Part 111 landfill final cover design is to minimize both the potential for direct contact with contaminated materials, and the potential for leaching of the contaminants into the underlying aquifers. With contaminated materials currently sitting in shallow aquifer at the H.Brown Site any additional degree of impermeability afforded by a Part 111 cap is negated. Additionally, the Pre-Design Field Investigation found that site related lead contamination is not currently migrating off-site in the groundwater, but instead is remaining bound to soil particles on-site, showing that direct contact with the contaminated soil is the exposure pathway of concern. The concrete foundations and asphalted areas will serve as a barrier to direct contact as long as proper maintenance is continued and will also minimize the potential for precipitation from coming in contact with contaminants in the vadose zone. Under the new future use and redevelopment scenario, with an active facility to be operating on-site, and with long-term maintenance of the cover system assured, the requirement to construct and maintain a vegetated clay cap over the contaminated soils is being waived. If the land-use changes the cleanup plan contains a contingency that a vegetated clay cover, consistent with the requirements contained in Michigan's Act 451, Part 115 will be constructed.

Part 115 of the Natural Resources and Environmental Protection Act, 1994 PA 451 (Act 451 Part 115) (formerly known as the Michigan Solid Waste Management Act or Act 641)- If for some reason redevelopment of the property as contemplated in this ROD Amendment fails, a final cover meeting the requirements of Part 115 will be constructed. Upon closure of the site, high levels of contaminants will be left on-site untreated. Because the waste is sufficiently similar to waste regulated under the Act, the Act's requirements are relevant and appropriate for the waste.

Michigan Public Health Code, Public Act 368 of 1978, Part 127 - This act regulates the water supply intended for use or used to supply groundwater. It is applicable to the selected remedy, because it addresses the location, construction, and abandonment of private drinking wells.

Inland Lakes and Streams Act, Public Act 346 of 1972, as amended - The act regulates construction activities on or over bottomlands of inland lake and streams. This act will be applicable to the selected remedy, because it addresses the mitigation of potential run-off, erosion, silting, and sedimentation in the surface waters during construction.

Mineral Well Act, Public Act 315 of 1969, as amended - This act regulates location, construction, and abandonment of monitoring and test wells. This act is similarly relevant and appropriate for the selected remedy.

#### 4. To-Be-Considered

OSWER Directive #9355.4-02 Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund sites - This directive sets interim soil lead cleanup standards at 500 - 1000 parts per million.

Wetlands Management Executive Order 11990 - The order requires federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands.

Floodplain Management Executive Order 11988 - This order requires the minimization of potential harm to or within flood plains and the avoidance of long- and short-term adverse impacts associated with the occupancy and modification of flood plains.

#### c. Cost Effectiveness

Cost effectiveness compares the effectiveness of an alternative in proportion to its cost of providing environmental benefits. Tables 1 and 2 list the costs associated with the implementation of the remedy.

The selected remedy, Alternative 2, has been determined to afford overall effectiveness proportional to its cost. Alternative 2 carries moderate costs in comparison to the other alternatives considered. While both Alternatives 2 and 3 are protective of human health and the environment, Alternative 2 provides for the additional benefit of providing for the productive, beneficial, continued use of the property and is the preferred alternative for the current site owner and prospective purchaser. Therefore, although the selected remedy is not the least costly alternative considered, U.S. EPA believes this benefit compensates for the additional cost associated with the selected remedy. The selected remedy affords the greatest effectiveness proportional to its cost.

d. Utilization of Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies to the Maximum Extent Practicable

The selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a cost effective manner for this site. Of those alternatives that are protective of human health and the environment and comply with ARARs, the U.S. EPA has determined that the selected remedy provides the best trade-offs in terms of long-term effectiveness and permanence, reduction in toxicity, mobility, or volume achieved through treatment, short-term effectiveness, implementability, cost, and considering state and community acceptance.

The selected remedy offers a high degree of long-term effectiveness and permanence. These benefits are achieved at a reasonable cost.

e. Preference for Treatment as a Principal Element

Because of the large volume of contaminated waste at this site (180,000 cubic yards of soil) and treatment of the principal threats of the site was not found to be practicable, the selected remedy does not satisfy the statutory preference for treatment as a principal element.

## **VI. Documentation of Significant Changes**

The Proposed Plan was released for public comment in August 1997. The Proposed Plan identified Alternative #2, Warehouse Redevelopment, as the preferred alternative. That alternative stated that three (3) feet of fill would be brought in to develop the appropriate grades at the site. During the public comment period discussions between MDEQ, the developer, the PRPs, and U.S. EPA, revealed that the developer had intended on using consolidated contaminated soil to raise the elevations, i.e. only a portion of the three feet of fill needed would be clean fill. As a result of the discussions it was determined by U.S. EPA, in consultation with MDEQ that, at a minimum, the cover would need to consist of at least two (2) feet of clean fill material to ensure protection from direct contact with the contaminated soils. Therefore, in the areas to be covered by concrete foundations the contaminated soil would be covered by, at a minimum, six (6) inches of concrete and eighteen (18) inches of clean fill. In the areas to be covered by asphalt the cover would consist of, at a minimum, three (3) inches of asphalt, eight (8) inches of road gravel, and thirteen (13) inches of clean fill. Contaminated areas to be landscaped would be covered by three (3) feet of clean fill to allow for protection for things such as planting, rooting zones, and freeze-thaw conditions.

## **VI. Summary**

The presence of soil, sediment, and groundwater contamination at and around the H. Brown site requires that remedial actions be implemented to reduce the risk to public health and the environment. The U.S. EPA believes, based upon the RI/FS, the Pre-Design Field Investigation and the Administrative Record, that the selected alternative provides the best balance of trade-offs among alternatives with respect to the criteria used to evaluate the remedies. Based upon the information available, at this time, the U.S. EPA believes that the selected remedy will be protective of human

health and the environment, will attain ARARs and will utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

The total estimated costs for the selected remedy at this site are as follows:

<u>Alternative</u>	<u>Total Capital Cost</u>	<u>Total O&amp;M</u>	<u>Total Present Worth</u>
#2	\$5,011,502	\$13,185	\$5,214,199